Antimicrobial Activity of Ceftaroline Combined With NXL104 When Tested Against Enterobacteraeaceae Producing Deregpressed AmpC β-lactamase

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Introduction

AmpC β-lactamases are clinically important cephalosporinases encountered in a variety of Enterobacteraeaceae. These enzymes mediate resistance to penicillins and β-lactam–β-lactamase inhibitor combinations, making the selection of empiric therapy difficult. These enzymes are inducible and transmissible, and have been implicated in resistance to cephalosporins and carbapenems. Among several β-lactamases, AmpC are the most active against extended-spectrum cephalosporins (ESCP) and cephamycins (CSP). The most prevalent plasmid-mediated AmpC in Enterobacteriaceae is highly active against CAZ-R ESP, CSP and IPP with MIC50s ≤0.5 μg/mL; resistant strains at this concentration of NXL104. Categorical interpretations were based on CLSI and EUCAST criteria. All QC results were within specified ranges as published in CLSI documents.

Results

- **CXL104 activity against typical AmpC-producing species, Enterobacteraeaceae, and Proteae** (Table 1). Overall, 15.9% (203 strains) were ceftazidime-resistant (Ceftazidime-R). CXL104: Overall, 15.9% (203 strains) were ceftazidime-resistant (Ceftazidime-R). CXL104 activity against AmpC-hyperproducing Enterobacteriaceae varied most in the United States (Table 1). These strains were genetically related by pulsed-field gel electrophoresis and carried mainly blacR genes; among several β-lactamase gene (data not shown).

- **CXL104 activity against indole-positive Proteae** (MIC≤0.5 μg/mL) was comparable to that of cephefime (MIC≤0.5 μg/mL).

- **CXL104**: Overall, 15.9% (203 strains) were ceftazidime-resistant (Ceftazidime-R). CXL104: Overall, 15.9% (203 strains) were ceftazidime-resistant (Ceftazidime-R).

- **CXL104 and Ceftazidime (CXL104)” b. Includes: CXL104 activity against recent emerging serotypes of Enterobacteraeaceae. Picks up the strain against cephefime (MIC≤0.5 μg/mL).

Conclusions

- **CXL104 activity against recent emerging serotypes of Enterobacteraeaceae.**

References

Clinical and Laboratory Standards Institute (2009). **M01-A8** for broth microdilution susceptibility tests for aerobic bacteria, **M02-A9** for anaerobic bacteria, **M07-A8** for antimicrobial agents, with recent minor changes. Wayne, PA. CLSI.


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